



# STIC Search Report

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### Search Notes

17/3,K/27 (Item 27 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00780893 \*\*Image available\*\*

BASKETBALL SHOOTING TRAINER AND METHOD

BASKET-BALL : DISPOSITIF D'ENTRAINEMENT POUR TIRS AU PANIER ET PROCEDE ASSOCIE

Patent Applicant/Assignee:

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, US (Nationality), (For all designated states except: US)

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Haven, CT 06508-1832, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200114022 A1 20010301 (WO 0114022)  
Application: WO 2000US22614 20000818 (PCT/WO US0022614)  
Priority Application: US 99150059 19990820

Designated States:

(Protection type is "patent" unless otherwise stated - for applications  
prior to 2004)

AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE  
ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT  
LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM  
TR TT TZ UA UG US UZ VN YU ZA ZW

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BASKETBALL SHOOTING TRAINER AND METHOD

Main International Patent Class: A63B-069/00

Fulltext Availability:

Detailed Description

Claims

English Abstract

An apparatus (40) is used to implement a method for training a person to accomplish a basketball shot. A lower body positioning member (60) is located in front of a leg area of the person when that person is in a position to attempt the shot. When the person so attempts the shot, the lower body positioning member restrains forward rotation of the person's leading shin. An...

...located in front of a torso area of the person. When the person attempts the shot, the upper body positioning member restrains downward rotation of the person's shooting arm. In a repetitive process, the person is provided with a basketball and shoots the basketball at the goal. By this repetitive process the person learns to accomplish the shot without excessive rotation of the lower leg and upper arm.

Detailed Description

BASKETBALL SHOOTING TRAINER AND METHOD

This patent application claims priority of U.S. Provisional Patent Application Serial No.

60/150,059 entitled "BASKETBALL SHOOTING TRAINER AND METHOD" that was filed on August 20, 1999, the disclosure of which is incorporated by reference in its entirety herein.

This invention relates to basketball, and more particularly to a method and apparatus for training a person to shoot free - throws. A key aspect of the basketball free - throw or foul shot is the consistent environment presented to the player. From court to court, the distances involved in making the shot will be entirely consistent as are the particular properties of the equipment and environment largely relevant to accomplishing the shot. The absence of a defender attempting to block the shot removes any strategy considerations. Therefore, the ability to successfully make free - throws is a highly trainable skill. The most common method of training is simple unaided repetition...

...be instructional feedback to the user.

We have come to observe and understand much about free - throw shooting techniques both good and bad. Because of the uniform circumstances presented by the free - throw, other than a small inherent randomness, the causes of shooting inaccuracy rest entirely with the player, technique, and training. By minimizing potential sources of such inaccuracy, the player's free - throw shooting percentage can be increased. Most, if not all, competitive basketball players at the junior high school, high school, college, and professional levels have sufficient hand/wrist strength to accomplish a free - throw with relatively slight movement of the upper torso and even less movement of the legs. Nevertheless, even some professional players go through very extreme movements during free - throw shooting. In particular, the player often starts standing erect and then initiates a cocking or setting movement: squatting with his legs; lowering his shooting arm so that the shooting elbow is significantly below the shoulder; and flexing that elbow outward. To attempt the shot, the player simultaneously extends his legs and shooting arm, bringing his elbow inward as the arm extends. We believe this extreme range of motion presents a significant source of shooting inaccuracy. At a first level, the greater range of motion from the set point to the release point increases the likelihood that the shooter's release position, speed, and the like may be other than optimal. At a second...

...however, this is exacerbated by the fact that the longer range of motion puts the shooter in positions where he is more likely to be affected by fatigue. In particular, fatigued legs will greatly affect the amount of propulsion provided by the legs if the shooter makes a deep squat to the set position prior to shooting. Also, lowering of the shooting arm tends to bring the ball down to or below the level of the player's chin. As the player extends his shooting arm the ball passes in front of the player's face, moving through the line...  
...sight to the rim so that the player must refocus on the rim as the shot is taken.

We have accordingly provided a method for teaching a player to shoot free - throws with a shooting technique configured to minimize sources of error and the effects of fatigue, thereby, maximizing accuracy...

...the player ultimately experiences the exact same sensory inputs as in

the absence of the apparatus .

Accordingly, in one aspect the invention is directed to a device for training a person to accomplish a basketball shot , by way of example a foul shot . The device includes a generally vertically extending frame and a horizontally extending support, supporting the frame. A...

...leg area of the person when that person is in a position to attempt the shot . When the person so attempts the shot the lower body positioning member restrains forward rotation of the person's leading shin. Preferably...

...located in front of a torso area of the person. When the person attempts the shot , the upper body positioning member restrains downward rotation of the person's shooting arm.

In various implementations of the invention, at least one ball rack may hold a...

...of the frame. An elbow positioning member may confine outward rotation of the person's shooting elbow. The elbow positioning member may include a vertically-extending pad carried by the upper...

...lower body positioning members may be positioned to respectively contact a tricep area of the shooting arm and the leading shin upon threshold movement of such arm and shin. The upper body positioning member may be positioned to restrain (constrain or confine) movement of the upper shooting arm so that its elbow does not go below its shoulder. The lower body positioning...

...an initial knee position.

In another aspect, the invention is directed to a method for training a person to accomplish a desired basketball shot . A training apparatus is provided which defines a location for the person to utilize the apparatus . The basketball goal is provided. The apparatus is positioned relative to the goal so that the defined location has a desired relationship...

...The person is positioned in the defined location in a preferred stance for the desired shot . A first member of the apparatus is positioned in front of a lower portion of...

...of the person. In a repetitive process, the person is provided with a basketball and shoots the basketball at the goal. During the shot , an initial squatting movement of the person, causing a lower leg of the person to...

...initial movement of the person, otherwise causing an upper arm portion of the person's shooting arm to rotate down to or beyond a threshold rotation, will be restrained by the...

...to no rotation is permitted). By this repetitive process the person learns to accomplish the shot without excessive rotation of the lower leg and upper arm.

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Advantageously, the shooter receives balls from racks positioned for access as close as possible to the desired initial...

...and drawings, and from the claims.

FIG. 1 is a top view of a basketball free - throw lane area.,  
FIG. 2 is a partially schematic side view of a player preparing to shoot a free - throw with a free - throw training apparatus shown cut away.

FIG. 3 is a view of a free - throw training apparatus according to principles of the invention.

FIG. 4 is a side view of the free - throw training apparatus of FIG. 3.

FIG. 5 is a front view of the free - throw training apparatus of FIG. 3.

FIG. 6 is a semi-schematic side view of the player of FIG. 2 setting to take a free - throw shot .

FIG. 7 is a semi-schematic side view of the player of FIG. 2 taking the shot .

FIG. 8 is a view of a second free - throw training apparatus according to principles of the invention.

Like reference numbers and designations in the various drawings indicate like elements.

FIG. I shows a free - throw lane of a basketball court 20. The court includes a floor 22 with a free - throw line 24 marked thereon. A backboard 26 is held above the floor and has a front surface 28. A basket rim or ring 30 is secured in...

...the front surface 28 is a distance L away from the front edge of the free - throw line 24 and the upper edge of the rim 30 is a height H above the floor 22 (FIG. 2). Under universal basketball standards, L and H are respectively 15 and 10 feet (4.57 and 3.05 m) For a right handed shooter , it is believed that advantageous foot positions are shown in FIG. I for the shooter 's right and left feet/shoes 100 and 102. The feet are on opposite sides of the court centerline 500 so that the toe of the right shoe is just behind (from the shooter 's viewpoint) the free - throw line 24. The left foot is in a toe-out orientation (pointed outward by approximately...  
...inches (for example 2-8 inches(5-20 cm)) behind the front edge of the free - throw line.

FIGS. 3-5 show a training apparatus 40 according to principles of the invention. The apparatus includes a base formed of left and right generally longitudinal members 42A and

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42B and a transverse crossmember 44 joining the left and right members. The base members...

...steel bar stock to minimize interference with the user's feet. Extending upward from the base , a frame member includes left and right generally vertical members or uprights 48A and 48B secured at their lower ends to the base such as by welding or by clamps. A crossmember 52 of the frame connects the...

...inch (0.24 cm) thick steel tube.

Advantageously, the apparatus has members for restraining the shooter's setting movement when attempting the shot to provide feedback to the shooter. A horizontal crossarm 60 is secured at ...collar 72. In operation, the crossarm 60 will be used to position and direct the shooter's leading shin while the crossarm 68 will be used to position and direct the shooter's upper shooting arm and is therefore located substantially above the crossarm 60. Exemplary material for the longitudinal...

...an operative position for the apparatus with the front ends 84A and 84B of the base members 42A and 42B just behind the free-throw line 24 and the crossarmis very close to the line. The preferred shooting position for the shooter is thus within the apparatus. It is noted that the "front" or "for-ward" direction for the apparatus faces the basket just behind the free-throw line.

With the apparatus so positioned relative to the free-throw line and rim, and the shooter positioned in the preferred initial shooting position and stance (FIG. 2), the crossarmis 60 and 68 may be positioned to provide the desired restraint and direction. Specifically, the crossarm 60 extends parallel to the free-throw line and is located spaced in front of the lower leg 104 of the shooter, preferably, in front of an upper portion of the shooter's leading shin 106. For a right handed shooter, the separation is effective so that, upon a minimal flexion rotating the shooter's right knee 108 forward, his right shin will contact the crossarm after the shin...

...knee moving between about one and about three inches from its initial position. For a shooter with a two-foot long shin this involves a rotation of between about 20 and...

...70.

The crossarm 68 may be positioned in front of the upper portion of the shooter's body.

Specifically, it is located in front of the shooter's chest 110 at a desired height.

The shooter is provided with a basketball. An initial position of the shooter (FIG. 2) is standing generally upright, holding the basketball in his shooting hand 112 with the shooting elbow 114 pointed substantially forward elevated slightly relative to the shoulder 116...

...left hand, not shown) may be positioned supporting the basketball to the side of the shooting hand with the off elbow (not shown) directed laterally.

When beginning to shoot the basketball, many shooters will be inclined to initially squat while both lowering and flaring out their shooting elbow. The extremes of these motions

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are undesirable sources of shooting inaccuracy. Thus, any initial squatting movement will cause the shooter's lower legs to rotate forward, bringing the right shin (for a right handed shooter) into contact with the crossarm 60 (FIG. 6), restraining further forward rotation of the lower leg. Any squatting movement also lowers the shooter's torso. The crossarm 68 is advantageously positioned so that, given the desired restrained flexion, the backside (tricep area) 120 of the shooter's upper shooting arm 122 will come into contact with the crossarm when the legs have rotated downward...

...40 degrees). Advantageously, the threshold angle is effective to prevent the ball from blocking the shooter 's direct line of sight to the rim. Upon encountering these restraints of leg and arm motion, the shooter will then finish the shot by extending his legs and arms and launching the ball with a flick of his wrist 124 (FIG. 7). The process is repeated until the shooter has trained himself by ingraining the desired minimal flexion and movement and will build the muscle memory to accomplish the free - throw with the desired minimal motion. Since the shooter is not encumbered by devices attached to his body, when the apparatus is removed, the shooter will experience no change in sensation and, thereby, will be able to maintain the preferred...on the crossarm 68 and/or longitudinal arm 70 to restrain lateral movement of the shooter 's shooting elbow.

Advantageously, the pad extends vertically and generally parallel to the court centerline. The transverse position of the pad 84 may be adjustable via sliding along the...

...of the upper crossarm with the tricep This feedback would be utilized to train the shooter to maintain his motion within a tolerable amount. Such an electronic system might be particularly...

...include various additional sensors and monitoring equipment such as a pressure sensor array on the floor to check the shooter 's balance and a computer monitor to display the parameters of the shooter 's form and performance.

Another advantageous feature of the apparatus is the provision of one...

...crossmembers 96 and supported by the collar 97 to support the rack. In operation, the shooter removes the foremost ball from a rack. The remaining balls roll forward, the next ball taking the place of the previous ball. This allows the shooter to execute a series of shots without having to move out of position to get new basketballs and without the need...

...a feeder. Advantageous arrangement places at least five basketballs on each rack so that the shooter can shoot ten shots before collecting the basketballs and reloading the racks.

Although illustrated in FIGS. 3-5 configured for use by a left handed shooter, the apparatus is preferably convertible for use with right or left handed shooters or may be made ambidextrous without need for conversion. By way of example, the crossarms...

...apparatus and mounted on the left side of the apparatus to accommodate a left handed shooter. Alternatively, there could be two sets of crossarms and longitudinal arms with both sets being...

...stowed condition while the other set is in a deployed condition for use by the shooter.

As noted above, one or both crossarms may be stowed or removed. With the upper...

...redployed after a period of time, this may provide information on how well the

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shooter has imprinted the desired shot form. Optionally, deployment of only the lower crossarm may be useful to teach jump shooting.

Deployment of only the upper crossarm may be useful to simulate a defender. An additional...

...and the ball racks while the latter should be effective to provide a relatively unintrusive base. The apparatus may be alternately configured, especially if additional or fewer features are desired.

Although most relevant to foul shots, the apparatus and method may be applied to teaching proper technique for accomplishing other shots. Accordingly, other embodiments are within the scope of the following claims.

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Claim

A device (40) for training a person to accomplish a basketball shot comprising:  
a generally vertically-extending frame member (48A, 48B);  
a generally horizontally-extending support member (42A...

...leg area of the person when the person is in a position to attempt the shot so that when the person attempts the shot the lower body positioning member restrains forward rotation of the person's leading shin; and...

...front of a torso area of the person so that when the person attempts the shot the upper body positioning member restrains downward rotation of the person's shooting arm.

2 The device of claim 1 further comprising:  
at least one ball rack (92A...

...1 further comprising an elbow positioning member (86) confining outward rotation of the person's shooting elbow.

5 The device of claim 4 wherein the elbow positioning member comprises a vertically...

...wherein the upper body positioning member is positioned to contact a tricep area of the shooting arm upon a threshold movement of the shooting arm and

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lower body positioning member is positioned to contact the leading shin upon...

...7 wherein the upper body positioning member is positioned to restrain movement of the upper shooting arm so that the elbow does not go below the shoulder of the shooting arm.

9 The device of claim 1 wherein the lower body positioning member is positioned...

...to about 7.5 cm) ahead of an initial knee position.

10 A method for training a person to accomplish a desired basketball shot comprising: providing a training apparatus (40) which defines a location for the person to utilize the apparatus;  
providing a basketball goal (26, 30);  
positioning the apparatus relative to the goal so that the defined location has a desired



relationship to the goal;  
positioning the person in the defined location in a preferred stance for the desired shot ; positioning a first member (60) of the apparatus in front of a lower portion of...

...the  
person; and  
repeatedly:  
providing the person with a basketball (98); and  
having the person shoot the basketball at the goal so that at least one of:  
an initial flexion of...

...an initial movement of the person, causing an upper arm portion of the person's shooting arm to rotate down to or beyond a threshold rotation, will be  
restrained by the second member,  
so that the person learns to accomplish the shot without excessive rotation of the lower leg and upper arm.

II. The method of claim 10 wherein:

the restraint of the rotation of the upper portion of the shooting arm is by physical  
contact with the second member;  
the restraint of the rotation of...

...a second detector (91) and the restraint of rotation of the upper portion of the shooting arm is by feedback responsive to interaction of the shooting arm with a beam extending between the second source and second detector.

13 The method...

...member, and wherein, if the initial movement of the person causes the elbow of the shooting arm to rotate outward, such outward rotation to or beyond a threshold outward rotation will be restrained by the third member.

14 The method of claim 10 wherein the desired shot is a foul shot and wherein the positioning step places the person standing behind the foul line.

15 The...

...claim 10 wherein the person is provided with the basketballs from a rack on the apparatus and positioned so that the person does not need to reposition himself or herself between shot attempts.

16 A device for training a person to accomplish a basketball shot comprising at least one of a lower body positioning member (60) located in front of a leg area of the person when the person is in a position to attempt the shot so that when the person

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attempts the shot the lower body positioning member restrains forward rotation of the  
person's leading shin; and...

...front of a torso area of the person so that when the person attempts the shot the upper body positioning member restrains downward rotation of the person's shooting arm.

I

Set	Items	Description
S1	1953	BASKETBALL? OR BASKET()BALL?
S2	544154	TRAIN? OR PRACTIS? OR PRACTIC? OR REHEARS? OR DRILL? OR TU- TOR? OR INSTRUCT? OR TEACH? OR EDUCAT?
S3	8000490	APPARATUS? OR AID OR AIDS OR HELPER? OR DEVICE? OR ASSIS- TE- R? OR ASSISTANCE? OR GUIDE? OR JIG OR JIGS OR IMPLEMENT? OR I- NSTRUMENT? OR TOOL? ?
S4	51128	SHOOT? OR SHOT? OR FREE()THROW? OR FREETHROW? OR FOUL() (SH- OT? OR SHOOT?) OR FOULSHOT? OR FOULSHOOT?
S5	1829057	RADIAL? OR SPOKE? OR AIMER? OR POINTER? OR DIRECTIONAL? OR GUIDE? OR ARM OR ARMS OR MARKER? OR ARROW? OR INDICATOR? OR L- ANEMARKER? OR SHOTPATH? OR SHOT()PATH? OR LINE(2W) (SIGHT OR A- IM OR AIMS OR AIMING)
S6	1765675	PLURALIT? OR MANY OR NUMEROUS? OR MULTIPL? OR MULTITUD? OR SEVERAL? OR "MORE THAN ONE" OR MANIFOLD?
S7	3413174	GROUND? OR COURT? OR FLOOR? OR BASE? OR PLAY?()SURFACE?
S8	1971853	COMBIN? OR CORRESPOND? OR CONJUNCTION? OR TANDEM?
S9	6652	(COLOR? OR COLOUR?) () (CODE? OR CODING OR COORDINAT? OR IND- ICAT?) OR COLORCOD? OR COLOURCOD?
S10	79656	IC=A63B?
S11	212	S1 AND S2 AND S3
S12	183	S11 AND (S4 OR S10)
S13	212	S11:S12
S14	85	S13 AND S5
S15	3	S14 AND S6
S16	36	S14 AND S7:S9
S17	0	S16 AND S6
S18	3	S15 OR S17
S19	3	IDPAT (sorted in duplicate/non-duplicate order)
S20	36	S16 NOT S15

? show files

File 347:JAPIO Nov 1976-2004/Mar(Updated 040708)  
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File 350:Derwent WPIX 1963-2004/UD,UM &UP=200446  
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*PAT Lit*  

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*BIBLIOG.*  
*FILES*  

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*SELECTED*  
*HIT!*  
  
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Set	Items	Description
S1	1953	BASKETBALL? OR BASKET()BALL?
S2	544154	TRAIN? OR PRACTIS? OR PRACTIC? OR REHEARS? OR DRILL? OR TU- TOR? OR INSTRUCT? OR TEACH? OR EDUCAT?
S3	8000490	APPARATUS? OR AID OR AIDS OR HELPER? OR DEVICE? OR ASSIS- TANCE? OR ASSISTANCE? OR GUIDE? OR JIG OR JIGS OR IMPLEMENT? OR I- NSTRUMENT? OR TOOL? ?
S4	51128	SHOOT? OR SHOT? OR FREE()THROW? OR FREETHROW? OR FOUL() (SH- OT? OR SHOOT?) OR FOULSHOT? OR FOULSHOOT?
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S7	3413174	GROUND? OR COURT? OR FLOOR? OR BASE? OR PLAY?()SURFACE?
S8	1971853	COMBIN? OR CORRESPOND? OR CONJUNCTION? OR TANDEM?
S9	6652	(COLOR? OR COLOUR?) () (CODE? OR CODING OR COORDINAT? OR IND- ICAT?) OR COLORCOD? OR COLOURCOD?
S10	79656	IC=A63B?
S11	212	S1 AND S2 AND S3
S12	183	S11 AND (S4 OR S10)
S13	212	S11:S12
S14	85	S13 AND S5
S15	3	S14 AND S6
S16	36	S14 AND S7:S9
S17	0	S16 AND S6
S18	3	S15 OR S17
S19	3	IDPAT (sorted in duplicate/non-duplicate order)

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File 350:Derwent WPIX 1963-2004/UD,UM &UP=200446  
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20/3,K/6 (Item 5 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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*Applicant*

015895127 \*\*Image available\*\*

WPI Acc No: 2004-052966/200405

XRPX Acc No: N04-042940

Training apparatus for basketball , has spaced apart shooting  
markers provided along each of arms radiated from base below hoop,  
and vision markers attached to hoop and individually aligned to arms

Patent Assignee: HEFLIN R L (HEFL-I)

Inventor: HEFLIN R L

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20040002397	A1	20040101	US 2002319372	P	20020701	200405 B
			US 2003604137	A	20030627	

Priority Applications (No Type Date): US 2002319372 P 20020701; US  
2003604137 A 20030627

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 20040002397	A1	5	A63B-069/00	Provisional application US 2002319372

Training apparatus for basketball , has spaced apart shooting  
markers provided along each of arms radiated from base below hoop,  
and vision markers attached to hoop and individually aligned to arms

Abstract (Basic):

... Spaced apart shooting markers (24) are provided along arms  
(22) radiated from a base (20). The base is put on the playing  
floor (16) below the hoop (12). Vision markers (26), attached to the  
hoop, are individually aligned to the arms. In use, the player stands  
on one of the shooting markers facing the hoop. The vision marker  
provides visual aid to the player as he or she shoots the ball into  
the hoop.

... For developing shooting skills and accuracy of basketball  
player from short range, mid range, and/or long or three point range.  
Used with any basketball playing area...

...Improves player's shooting skills and accuracy on all playing levels  
from elementary to professional...

...The figure is a plan view of a basketball training apparatus .

...Playing floor (16...

... Base (20...

... Shooting markers (24

Title Terms: TRAINING ;

International Patent Class (Main): A63B-069/00

Set	Items	Description
S1	5	AU=(HEFLIN R? OR HEFLIN, R?)
S2	0	RONALD(2W)HEFLIN
S3	1953	BASKETBALL? OR BASKET()BALL?
S4	79656	IC=A63B?
S5	1	S1:S2 AND S3:S4

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INVENTOR -  
AUTHOR  
SEARCH

PAT LIT &  
NON PAT LIT

BIBLIOG. &  
FULL TEXT

FILES  
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5/3,K/1 (Item 1 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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THE APPLICATION

015895127 \*\*Image available\*\*  
WPI Acc No: 2004-052966/200405  
XRPX Acc No: N04-042940

Training apparatus for basketball , has spaced apart shooting markers  
provided along each of arms radiated from base below hoop, and vision  
markers attached to hoop and individually aligned to arms

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Inventor: HEFLIN R L

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			US 2003604137	A	20030627	

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2003604137 A 20030627

Patent Details:

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Training apparatus for basketball , has spaced apart shooting markers  
provided along each of arms radiated from base below hoop...

Inventor: HEFLIN R L

Abstract (Basic):

... For developing shooting skills and accuracy of basketball  
player from short range, mid range, and/or long or three point range.  
Used with any basketball playing area...

...The figure is a plan view of a basketball training apparatus...

...Title Terms: BASKETBALL ;

International Patent Class (Main): A63B-069/00

Set	Items	Description
S1	2	AU=(HEFLIN R? OR HEFLIN, R?)
S2	0	RONALD(2W)HEFLIN
S3	1717	BASKETBALL? OR BASKET()BALL?
S4	10480	IC=A63B?
S5	0	S1:S2 AND S3:S4

? show files

File 348:EUROPEAN PATENTS 1978-2004/Jul W02  
(c) 2004 European Patent Office

File 349:PCT FULLTEXT 1979-2002/UB=20040715,UT=20040708  
(c) 2004 WIPO/Univentio

Set	Items	Description
S1	14	AU=(HEFLIN R? OR HEFLIN, R?)
S2	3	RONALD(2W)HEFLIN
S3	125081	BASKETBALL? OR BASKET()BALL?
S4	0	S1:S2 AND S3

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File 2:INSPEC 1969-2004/Jul W2  
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File 6:NTIS 1964-2004/Jul W3  
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Set	Items	Description
S1	1	AU=(HEFLIN R? OR HEFLIN, R?)
S2	0	RONALD(2W)HEFLIN
S3	360918	BASKETBALL? OR BASKET()BALL?
S4	0	S1:S2 AND S3

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Set	Items	Description
S1	1717	BASKETBALL? OR BASKET()BALL?
S2	761314	TRAIN? OR PRACTIS? OR PRACTIC? OR REHEARS? OR DRILL? OR TU- TOR? OR INSTRUCT? OR TEACH? OR EDUCAT?
S3	1467995	APPARATUS? OR AID OR AIDS OR HELPER? OR DEVICE? OR ASSISTE- R? OR ASSISTANCE? OR GUIDE? OR JIG OR JIGS OR IMPLEMENT? OR I- NSTRUMENT? OR TOOL? ?
S4	43024	SHOOT? OR SHOT? OR FREE()THROW? OR FREETHROW? OR FOUL() (SH- OT? OR SHOOT?) OR FOULSHOT? OR FOULSHOOT?
S5	797211	RADIAL? OR SPOKE? OR AIMER? OR POINTER? OR DIRECTIONAL? OR GUIDE? OR ARM OR ARMS OR MARKER? OR ARROW? OR INDICATOR? OR L- ANEMARKER? OR SHOTPATH? OR SHOT()PATH? OR LINE(2W) (SIGHT OR A- IM OR AIMS OR AIMING)
S6	1195898	PLURALIT? OR MANY OR NUMEROUS? OR MULTIPL? OR MULTITUD? OR SEVERAL? OR "MORE THAN ONE" OR MANIFOLD?
S7	1166734	GROUND? OR COURT? OR FLOOR? OR BASE? OR PLAY()SURFACE?
S8	1298673	COMBIN? OR CORRESPOND? OR CONJUNCTION? OR TANDEM?
S9	11864	(COLOR? OR COLOUR?) () (CODE? OR CODING OR COORDINAT? OR IND- ICAT?) OR COLORCOD? OR COLOURCOD?
S10	10480	IC=A63B?
S11	45	S1(10N)S2(10N)S3
S12	43	S11 AND (S4 OR S10)
S13	45	S11:S12
S14	7	S13 AND S6(10N)S5
S15	39	S13 AND S7:S9
S16	45	S13:S15
S17	45	IDPAT (sorted in duplicate/non-duplicate order)

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SHOT MAKING TRAINING APPARATUS AND METHOD  
PROCEDE ET APPAREIL D'ENTRAINEMENT AU LANCER

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Patent and Priority Information (Country, Number, Date):

Patent: WO 200386551 A1 20031023 (WO 0386551)

Application: WO 2003US10458 20030408 (PCT/WO US0310458)

Priority Application: US 2002118424 20020408

Designated States:

(Protection type is "patent" unless otherwise stated - for applications  
prior to 2004)

AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ  
EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR  
LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG  
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(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW  
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Publication Language: English

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SHOT MAKING TRAINING APPARATUS AND METHOD

Main International Patent Class: A63B-063/08

Fulltext Availability:

Detailed Description

Claims

English Abstract

...to the upper ring and extend downwardly and inwardly to attach to a  
shock absorbing base member (20). The base member includes an  
upwardly extending projection with a rounded upper surface that tapers  
downwardly and...  
...to direct the basketball out of the lower rings. The rings (12, 14) and  
the base member (20) form a goal assembly that is mounted on a support  
assembly telescopic post...

French Abstract

...vers le bas et vers l'interieur afin de les fixer a un element de  
base absorbant les chocs (20). L'element de base comprend une partie  
saillante s'etendant vers le haut dont une surface superieure arrondie s  
...  
...de basket en dehors des anneaux inferieurs. Les anneaux (12, 14) et  
l'element de base (20) forment un ensemble de but qui est monte sur un  
montant telescopique (38, 40...

## Detailed Description

### TITLE

SHOT MAKING TRAINING APPARATUS AND METHOD

### BACKGROUND OF THE INVENTION

The present invention relates generally to an apparatus for providing sports training and, in particular, to a shot making training apparatus and method such as for basketball.

An essential skill in basketball is the ability to make field goal, two point and/or three point, and free throw shots. Improving the accuracy of field goal and free throw shots, therefore, is a continuing desire of most basketball players. Shooting a basketball at a hoop by oneself in an effort to improve one's shot-making ability, however, can be a tedious task at best and time-consuming and inefficient at worst. Missed shots are always a problem because the balls must be chased down. Successful shots, though, are also a problem because the net is designed to cause the ball to drop to the playing floor immediately below the rim. A player then is forced to move from his or her shooting location to the basket in order to retrieve the ball and then move to another shooting location, which is inefficient and time-consuming. A subsequent successful shot means the process outlined above begins again.

The art has recognized these practice deficiencies and has provided numerous devices for improving the accuracy of a player's shots. Many of these devices are disadvantageously designed to be attached to basketball rims, limiting the use of the device to locations having an installed basketball rim. Those devices that are not designed to be attached to existing basketball rims are often bulky and difficult to transport and assemble. Other types of practice devices are targets or goals that reward the user for successful shots, and/or reduce the area of the hoop through which the basketball must pass, such...

...means to return the ball to the user after completion of a successful shot by the use of ramps, chutes or the like directing the ball to a single designated spot adjacent the basketball goal with the purpose of making shooting practice time more efficient. These devices return the ball to the same location after a successful shot thereby rendering them useless in practicing shots from other locations. Furthermore, in actual playing conditions, basketball shots are often taken while moving. Another essential skill in basketball, therefore, is the ability to move laterally, which is not an element of the prior art basketball training devices.

It is desirable, therefore, to provide an apparatus for providing training to basketball players that will work on a player's shot-making ability and lateral movement. Such apparatus can be used in any other type of shot making game or skill contest. It is also desirable to provide a shot making training apparatus that is portable, lightweight, and easy to use. It is also desirable to provide a shot making training apparatus that may be used by young children as well as adults. It is also desirable to provide a shot making training apparatus that is easy to assemble, disassemble, and transport.

### OBJECTS

### SUMMARY OF THE INVENTION

The present invention concerns a shot making training apparatus and method for improving a player's shot and the player's lateral movement. The training apparatus includes a generally horizontal upper ring...

...downwardly and inwardly therefrom to attach at another respective tangential point to a shock absorbing base member.

2 0 The upper ring, lower rings, and shock absorbing base member form a goal assembly. The lower rings are preferably the same diameter and constructed...

...shape depending upon the game to be played or the skill contest. The shock absorbing base member includes a projection extending from a center portion of an upper surface thereof. The...

...upper surface that tapers downwardly and outwardly to the upper surface of the shock absorbing base member. The shock absorbing base member preferably includes springs or dampers that absorb the force of the ball upon impact...

...projection and rebounding out the upper opening.

2

A lower surface of the shock absorbing base member is adapted to be attached to an upper portion of an elongated, telescoping pole...

...alike. The lower portion of 5 the pole is operable to be mounted to the ground or a playing surface.

In operation, the apparatus according to the present invention is assembled and adjusted to the desired height. The player shoots the ball with the objective of passing the ball through the upper ring defining the upper opening of the goal assembly. When a successful shot is made, the ball will fall onto the sloped surface of the projection. Depending on...

...pass through one of the openings so that the ball is returned close to the shot release point. The ball may also pass through either of the other two openings, which...

...force the player to move laterally to retrieve the ball in order to take another shot.

The training apparatus according to the present invention thus places a premium on a player's shot-making ability, but also improves a player's lateral movement. A player can practice stationary shots, both jump shots and free throws, as well as practice the ability to make a successful shot while moving laterally, simulating real-game situations. The training apparatus provides repetition necessary to develop an improved shot. The training apparatus is advantageously lightweight, easy to assemble and does not require the use...

...according to the present invention;

(b) providing a ball to a player;

2 5 (c) shooting the ball for a predetermined number of shots from one or more locations;

and

(d) tabulating a score based on at least one of the number of successful shots per attempted shots, the number of successful shots made in a row, and location of the ball as it exits the goal assembly.

3

While the training apparatus according to the present invention is useful for training basketball players, it can be utilized with other types of balls for playing a variety of...

...in an assembled configuration; Fig. 3 is a top plan view of the shock absorbing **base** member shown in Fig. 2 in accordance with the present invention;  
 Fig. 4 is a side elevation view of the **base** member of Fig. 3;  
 1 5 Fig. 5a is a perspective view of the training apparatus of Fig. 1 shown attached to a rigid **base** member in a retracted position;  
 Fig. 5b is a perspective view of the training apparatus and rigid **base** member of Fig. 5a in an extended position;  
 Fig. 6 is a perspective view of the training apparatus of Fig. 1 shown attached to a self righting **base** member;  
 2 0 Fig. 7 is a perspective view of the training apparatus of Fig. 1 shown attached to an alternative embodiment self-righting **base** member; and  
 Fig. 8 is a perspective view of the training apparatus of Fig. 5b shown in use with a basketball and player.

2 5

#### DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to Fig. 1, a training apparatus in accordance with the present invention is indicated schematically at 10. The training apparatus 10...

...extends downwardly and inwardly from the upper ring 12 to attach to a shock absorbing **base** member 20 by a bottom portion thereof.

1 5 Referring now to Fig. 3, a top plan view of the **base** member 20 is shown. The **base** member 20 includes an upper plate 22 and a lower plate 32 preferably connected by...

...the lower plate 32 are connected by a plurality of dampers 36, or by a combination of both 2 0 springs 34 and dampers 36. The damper 36 can be any...

...device such as a fluid filled shock adsorber or a body of resilient material. The **base** member 20 includes a projection 26 extending upwardly from a center portion of the upper...

...5 a plurality of attachment points 24 for attaching the lower rings 14 to the **base** member 20. The upper ring 12, the lower rings 14, and the **base** member 20, when connected together, form a goal assembly indicated generally at 21 in Fig. 2. The lower plate 32 of the **base** member 20 is preferably operable to be attached to a mounting surface (not shown). While...

...upper plate 22 can be used alone, to function as a shock adsorber, as the **base** member 20.

Referring now to Figs. 5a and 5b, a training apparatus 10a has the...

...lower member 40. A lower end of the lower member 40 is attached to a ground engaging **base** or support member 44. The upper end of the upper member 42 is mounted to the lower surface of the lower plate 32 of the **base** member 20 shown in Fig. 4. The support member 44 is adapted to engage or be mounted on the ground or a playing surface (not shown) to provide support for the goal assembly 21 and 1 0 the pole...

...function as a support assembly retaining said upper ring 12 a predetermined distance above the ground. Further, 20 the pole 38 can be positioned to extend horizontally relative to the ground with the goal assembly 21 attached with the same orientation relative to the ground as shown in Figs. 5a and 5b for moving the goal assembly horizontally. Other suitable...

...rotatable support member 46 and connect the rotatable 30 support member 46 to a corresponding plurality of support legs 50. A bottom portion of each  
6  
of the support legs 50 is operable to engage the ground or a playing surface. A pendulum 52 extends downwardly from a lower surface of the rotatable support member 46...

...to the telescoping pole 38 of Figs. 5a and 5b. In operation, a player 56 shoots a basketball 58 towards the goal assembly 21. If the shot is successful, the basketball 58 passes through the upper opening of the upper 15 ring 12 and impacts the base member 20. The springs 34 or dampers 36 of the base member 20 absorb the force of the basketball 58 so that the basketball remains below...

...is forced to move to retrieve the basketball and is in position to attempt another shot.

A method for using the training apparatus 10 (10a, 10b and 10c) can include the following steps.

- (a) providing the training apparatus 10 according to the present invention;
- 25 (b) providing the basketball 58 to the player 56;
- (c) allowing the player 56 to shoot the basketball 58 for a predetermined number of shots at the goal assembly 21; and
- (d) tabulating a score based upon one or more of the number of successful shots per attempted shots, the number of successful shots made in a row, and which of the lower rings 14 30 that the basketball 58 exits the ring assembly 21.

7

Of course, the training apparatus 10 can be used to play any of the known basketball game variations including the first player to make a predetermined number of shots and the first player to reach a predetermined number of points. Also, one or two...

...through a - 5 selected another one of the lower rings. This configuration is useful for shooting free throws or practicing from a specific area.

As shown in Fig. 8, concentric rings can be designated about the support member 44, each having a different "made" shot value. For example, an outer ring 60 can have a made shot value of "Y" points, an intermediate ring 62 can have a made shot value of "2" 10 points, and an inner ring 64 can have a made shot value of "1" points. An area inside the inner ring 64 on which the support member 44 rests can be an out-of-bounds area 66. A "Radar Shot 21" game can be played by various combinations of players. For example, one to six players can participate in one on one play...

...starting ball possession determined by a flip of a coin or the highest

scoring designated shooter for each team. If a player steps into the out-of-bounds area 66, the ball is awarded to the other team. The ball may change hands after each successful shot, hiftaction or rebound. When the ball changes hands, ownership must be established outside the outer...

...point total is reduced to fifteen and possession of the ball is retained.

While the training apparatus 10 has been described mainly as a basketball training tool, it can be used with other types of balls, such as a football, for training purposes or for contests of shooting skill. In accordance with the provisions of the patent statutes, the present invention has been...

#### Claim

... to said upper ring and extending inwardly and downwardly from said attachment point; and a base member positioned below said upper ring and being attached to said at least one 1...

...lower ring whereby when the object passes downwardly through said upper opening and contacts said base member, said base member prevents the object from being retained in said goal apparatus and directs the object ...

...are constructed of a lightweight material.

6 The apparatus according to claim 1 wherein said base member includes an upwardly extending projection having a rounded upper surface connected to a downwardly...

...surface for contacting the object.

0

9

. The apparatus according to claim I wherein said base member includes a shock adsorbing means for preventing the object from exiting said goal apparatus...

...point to said upper ring and extending inwardly and downwardly from said attachment point;

a base member positioned below said upper ring and being attached to said lower rings;

5 and

a support assembly being attached to said base member for retaining said upper ring a predetermined distance above the ground whereby when the object passes downwardly through said upper operung and contacts said base member, said base member directs the object to exit through one of said lower rings.

0

10 The...

...9 wherein said support assembly includes a pole having an upper end attached to said base member and a lower end attached to a ground engaging support member. 5 1 1. The apparatus according to claim IO wherein said pole...

...9 wherein said support assembly includes a pole having an upper end attached to said base member and a lower end attached to a plurality of



3 0 ground engaging legs.

I 0

. The apparatus according to claim 12 wherein said pole is attached...

...pole in a generally vertical orientation.

15 The apparatus according to claim 9 wherein said base member includes a shock

adsorbing means for preventing the object from exiting said goal apparatus through said upper opening.

16 The apparatus according to claim 15 wherein said...

...the object, the lower rings being connected

2 0 between the upper ring and a base member;

b. providing the object;

c. shooting the object at the goal assembly; and

d. retrieving the object and repeating said step c. a predetermined number of times...

...5 18. The method according to claim 17 including a step of tabulating a score based upon at least a number of successful shots.

19 The method according to claim 17 including tabulating a score is based upon at least one of a number of successful shots per attempted shots, a number of successful shots 30

made in a row, and from which of the lower opening the object exits the goal assembly.

11

. The method according to claim 17 including including at least one...

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S1	125081	BASKETBALL? OR BASKET()BALL?
S2	3903700	TRAIN? OR PRACTIS? OR PRACTIC? OR REHEARS? OR DRILL? OR TU- TOR? OR INSTRUCT? OR TEACH? OR EDUCAT?
S3	6703481	APPARATUS? OR AID OR AIDS OR HELPER? OR DEVICE? OR ASSIS- TE- R? OR ASSISTANCE? OR GUIDE? OR JIG OR JIGS OR IMPLEMENT? OR I- NSTRUMENT? OR TOOL? ?
S4	332948	SHOOT? OR SHOT? OR FREE()THROW? OR FREETHROW? OR FOUL() (SH- OT? OR SHOOT?) OR FOULSHOT? OR FOULSHOOT?
S5	2129380	RADIAL? OR SPOKE? OR AIMER? OR POINTER? OR DIRECTIONAL? OR GUIDE? OR ARM OR ARMS OR MARKER? OR ARROW? OR INDICATOR? OR L- ANEMARKER? OR SHOTPATH? OR SHOT()PATH? OR LINE(2W) (SIGHT OR A- IM OR AIMS OR AIMING)
S6	5694449	PLURALIT? OR MANY OR NUMEROUS? OR MULTIPL? OR MULTITUD? OR SEVERAL? OR "MORE THAN ONE" OR MANIFOLD?
S7	7991326	GROUND? OR COURT? OR FLOOR? OR BASE? OR PLAY?()SURFACE?
S8	883726	RIM OR RIMS OR BASKET? ? OR HOOP? ? OR NET OR NETS
S9	3897214	COMBIN? OR CORRESPOND? OR CONJUNCTION? OR TANDEM?
S10	9863	(COLOR? OR COLOUR?) () (CODE? OR CODING OR COORDINAT? OR IND- ICAT?) OR COLORCOD? OR COLOURCOD?
S11	853	S1 AND (S2 OR S4) AND S3
S12	6	S11 AND S6(10N)S5
S13	182	S11 AND S1(5N)S2
S14	49	S13 AND S5
S15	39	S14 AND S7:S10
S16	55	S12 OR S14 OR S15
S17	35	RD (unique items)

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Set	Items	Description
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S2	14509082	TRAIN? OR PRACTIS? OR PRACTIC? OR REHEARS? OR DRILL? OR TUTOR? OR INSTRUCT? OR TEACH? OR EDUCAT?
S3	17412637	APPARATUS? OR AID OR AIDS OR HELPER? OR DEVICE? OR ASSISTER? OR ASSISTANCE? OR GUIDE? OR JIG OR JIGS OR IMPLEMENT? OR INSTRUMENT? OR TOOL? ?
S4	2097922	SHOOT? OR SHOT? OR FREE()THROW? OR FREETHROW? OR FOUL() (SHOOT? OR SHOOT?) OR FOULSHOT? OR FOULSHOOT?
S5	10909716	RADIAL? OR SPOKE? OR AIMER? OR POINTER? OR DIRECTIONAL? OR GUIDE? OR ARM OR ARMS OR MARKER? OR ARROW? OR INDICATOR? OR LANEMARKER? OR SHOTPATH? OR SHOT()PATH? OR LINE(2W) (SIGHT OR AIM OR AIMS OR AIMING)
S6	21475169	PLURALIT? OR MANY OR NUMEROUS? OR MULTIPL? OR MULTITUD? OR SEVERAL? OR "MORE THAN ONE" OR MANIFOLD?
S7	3157702	GROUND? ?
S8	3929942	COURT? ?
S9	1999500	FLOOR?
S10	6817	PLAY?()SURFACE?
S11	5750515	RIM
S12	20316	RIMS
S13	197374	BASKET
S14	69612	BASKETS
S15	8161141	NET
S16	132760	NETS
S17	57059	(COLOR? OR COLOUR?) () (CODE? OR CODING OR COORDINAT? OR INDICAT?) OR COLORCOD? OR COLOURCOD?
S18	417	S1(10N)S2(10N)S3
S19	83	S18 AND S4
S20	9	S19 AND S6(10N)S5
S21	53	S19 AND S7:S17
S22	83	S19:S21
S23	62	RD (unique items)

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